Amendments to the claims.

Please amend the claims as follows:

1-142. (canceled)

143. (previously presented) A semiconductor structure, comprising:

at least two overlying faceted layers of single crystal epitaxial silicon, each epitaxial silicon layer comprising:

a faceted surface comprising a plurality of facets, and

sidewalls with insulative material thereover, and

an uppermost faceted layer of the at least two overlying layers of epitaxial silicon having a layer of an insulative material over the faceted surface of said uppermost layer of epitaxial silicon;

wherein the structure is situated on a substrate in a vertical orientation.

144. (previously presented) The semiconductor structure of Claim 143, wherein the insulative layer comprises an oxide film, a nitride film, an oxidized nitride film, or a composite oxide/nitride film.

145. (previously presented) The semiconductor structure of Claim 144, wherein the insulative layer comprises a silicon nitride film.

146. (previously presented) The semiconductor structure of Claim 145, wherein the silicon nitride film has a thickness of about 5 to about 20 nm.

147. (previously presented) The semiconductor structure of Claim 144, wherein the insulative layer comprises a silicon oxide film.

148. (previously presented) The semiconductor structure of Claim 147, wherein the silicon oxide film has a thickness of about 2 to about 5 nm.

149. (previously presented) A semiconductor structure, comprising:

at least two overlying faceted layers of single crystal epitaxial silicon, each of said layers comprising a faceted surface comprising a plurality of facets, sidewalls, and an insulative material over the sidewalls, an uppermost layer of the at least two overlying layers having a layer of an insulative material over the faceted surface; one or more of the layers of epitaxial silicon comprising a conductivity enhancing dopant; wherein the structure is situated on a substrate in a vertical orientation.

150. (previously presented) The semiconductor structure of Claim 149, wherein the conductivity enhancing dopant comprises a p-type dopant.

151. (previously presented) The semiconductor structure of Claim 150, wherein the p-type dopant is selected from the group consisting of diborane, boron trichloride, and boron trifluoride, and combinations thereof.

152. (previously presented) The semiconductor structure of Claim 149, wherein the conductivity enhancing dopant comprises an n-type dopant.

153. (previously presented) The semiconductor structure of Claim 152, wherein the n-type dopant is selected from the group consisting of phosphine, arsine, and combinations thereof.

154. (previously presented) The semiconductor structure of Claim 149, wherein one or more of the layers of epitaxial silicon comprises a concentration gradient of the dopant.

155. (previously presented) The semiconductor structure of Claim 154, wherein the concentration gradient comprises a low to high concentration of the dopant within the one or more of the layers of epitaxial silicon, with the high dopant concentration at the surface of said one or more of the layers.

156-166. (canceled)

167. (previously presented) The semiconductor structure of Claim 143, being a component of a transistor.

168. (previously presented) The semiconductor structure of Claim 167, being a transistor gate.

169. (previously presented) The semiconductor structure of Claim 167, being a source/drain diffusion region.

170. (previously presented) The semiconductor structure of Claim 149, being a component of a transistor.

171. (previously presented) The semiconductor structure of Claim 170, being a transistor gate.

172. (previously presented) The semiconductor structure of Claim 170, being a source/drain diffusion region.

173. (previously presented) A semiconductor structure, comprising:

at least two overlying faceted layers of single crystal epitaxial silicon including an uppermost faceted layer of single crystal epitaxial silicon; each of said faceted layers comprising a faceted top surface comprising a plurality of facets, and insulated sidewalls, and the uppermost faceted layer of epitaxial silicon having an insulated top surface; the structure situated on a substrate in a vertical orientation; the structure being a component of a transistor.

174. (previously presented) The semiconductor structure of Claim 173, being a transistor gate.

175. (previously presented) The semiconductor structure of Claim 173, being a source/drain diffusion region.

176. (previously presented) A semiconductor structure, comprising:

at least two overlying faceted layers of single crystal epitaxial silicon, each of said faceted layers comprising a faceted top surface comprising a plurality of facets, sidewalls, and insulative material over the sidewalls, an uppermost faceted layer of epitaxial silicon of the at least two overlying faceted layers having a layer of an insulative material over the top surface; the structure situated on a substrate in a vertical orientation; the structure being a component of a transistor.

177. (previously presented) The semiconductor structure of Claim 176, being a transistor gate.

178. (previously presented) The semiconductor structure of Claim 176, being a source/drain diffusion region.

179. (previously presented) A semiconductor structure, comprising:

at least two overlying faceted layers of single crystal epitaxial silicon, each of said faceted layers comprising a faceted top surface comprising a plurality of facets, sidewalls, and insulative material over the sidewalls, an uppermost faceted layer of epitaxial silicon of the at least two overlying faceted layers having a layer of an insulative material over the top surface; one or more of the at least two overlying faceted layers of epitaxial silicon comprising a conductivity enhancing dopant; the structure situated on a substrate in a vertical orientation; and the structure being a component of a transistor.

180. (previously presented) The semiconductor structure of Claim 179, being a transistor gate.

181. (previously presented) The semiconductor structure of Claim 179, being a source/drain diffusion region.

182. (previously presented) A semiconductor device, comprising:

a structure comprising at least two overlying faceted layers of single crystal epitaxial silicon, each of said faceted layers of epitaxial silicon comprising a faceted top surface

comprising a plurality of facets, and insulated sidewalls, and an uppermost faceted layer of epitaxial silicon of the at least two overlying faceted layers of epitaxial silicon having an insulated top surface; the structure situated on a substrate in a vertical orientation.

183. (previously presented) The semiconductor device of Claim 182, comprising a transistor.

184. (previously presented) The semiconductor device of Claim 183, wherein the structure comprises a transistor gate.

185. (previously presented) The semiconductor device of Claim 183, wherein the structure comprises a source/drain diffusion region.

186. (previously presented) A semiconductor device, comprising:

a structure comprising at least two overlying faceted layers of single crystal epitaxial silicon, each of said faceted layers of epitaxial silicon comprising a faceted top surface comprising a plurality of facets, and sidewalls, and insulative material over the sidewalls; an uppermost faceted layer of epitaxial silicon of the at least two overlying faceted layers of epitaxial silicon having a layer of an insulative material over the top surface; and the structure situated on a substrate in a vertical orientation.

187. (previously presented) The semiconductor device of Claim 186, comprising a transistor.

188. (previously presented) The semiconductor device of Claim 187, wherein the structure comprises a transistor gate.

189. (previously presented) The semiconductor device of Claim 187, wherein the structure comprises a source/drain diffusion region.

190. (previously presented) A semiconductor device, comprising:

a structure comprising at least two overlying faceted layers of single crystal epitaxial silicon, each of said faceted layers of epitaxial silicon comprising a faceted top surface comprising a plurality of facets, and sidewalls, and insulative material over the sidewalls; an uppermost faceted layer of epitaxial silicon of the at least two overlying faceted layers of epitaxial silicon having a layer of an insulative material over the top surface; one or more of the at least two faceted layers of epitaxial silicon comprising a conductivity enhancing dopant; and the structure situated on a substrate in a vertical orientation.

191. (previously presented) The semiconductor device of Claim 190, comprising a transistor.

192. (previously presented) The semiconductor device of Claim 191, wherein the structure comprises a transistor gate.

193. (previously presented) The semiconductor device of Claim 191, wherein the structure comprises a source/drain diffusion region.

194-195. (canceled)

196. (previously presented) A semiconductor structure, comprising:

at least two overlying faceted layers of single crystal epitaxial silicon, each of the at least two faceted layers of epitaxial silicon having a faceted top surface comprising a plurality of facets, sidewalls, and insulative spacers over the sidewalls, an uppermost faceted layer of epitaxial silicon having a layer of an insulative material over the top surface; one or more of the at least two layers of epitaxial silicon comprising a conductivity enhancing dopant; and the structure situated on a substrate in a vertical orientation.

197. (previously presented) A semiconductor structure, comprising:

at least two overlying faceted layers of single crystal epitaxial silicon, each of said faceted layers of epitaxial silicon comprising a faceted top surface comprising a plurality of

facets, sidewalls, and insulative material along the sidewalls, an uppermost faceted layer of epitaxial silicon of the at least two overlying faceted layers having a layer of an insulative material over the top surface of said uppermost faceted layer; and the structure situated on a substrate in a vertical orientation.

198. (previously presented) A semiconductor structure, comprising:

at least two overlying faceted layers of single crystal epitaxial silicon, each of said faceted layers of epitaxial silicon comprising a faceted top surface comprising a plurality of facets, and insulated sidewalls; an uppermost faceted layer of epitaxial silicon of the at least two overlying faceted layers having a layer of an insulative material over the top surface of said uppermost faceted layer; one or more of the faceted layers of epitaxial silicon comprising a conductivity enhancing dopant; and the structure situated on a substrate in a vertical orientation.

199. (previously presented) A semiconductor structure, comprising:

at least two overlying faceted layers of single crystal epitaxial silicon, each of said faceted layers of epitaxial silicon having a faceted top surface comprising a plurality of facets, sidewalls, and insulative spacers over the sidewalls; an uppermost faceted layer of epitaxial silicon having a layer of an insulative material over the top surface of said uppermost faceted layer; the structure situated on a substrate in a vertical orientation; the structure being a component of a transistor.

200. (previously presented) A semiconductor structure, comprising:

at least two overlying faceted layers of single crystal epitaxial silicon, each of said faceted layers of epitaxial silicon having a faceted top surface comprising a plurality of facets, sidewalls, and insulative spacers over the sidewalls; an uppermost faceted layer of epitaxial silicon having a layer of an insulative material over the top surface of said uppermost faceted layer; one or more of the at least two overlying faceted layers of epitaxial silicon comprising a conductivity enhancing dopant; the structure situated on a substrate in a vertical orientation; and the structure being a component of a transistor.

201. (previously presented) A semiconductor device, comprising:

a structure comprising at least two overlying faceted layers of single crystal epitaxial silicon, each of said faceted layers of epitaxial silicon having a faceted top surface comprising a plurality of facets, and insulated sidewalls, an uppermost faceted layer of epitaxial silicon of the at least two overlying faceted layers of epitaxial silicon having a layer of an insulative material over the top surface of said uppermost faceted layer; and the structure situated on a substrate in a vertical orientation.

202. (previously presented) A semiconductor device, comprising:

a structure comprising at least two overlying faceted layers of single crystal epitaxial silicon, each of said faceted layers of epitaxial silicon comprising a faceted top surface comprising a plurality of facets, and sidewalls covered by an insulative material; an uppermost faceted layer of epitaxial silicon of the at least two overlying epitaxial silicon faceted layers having a layer of an insulative material over the top surface of said uppermost faceted layer; one or more of the faceted layers of epitaxial silicon comprising a conductivity enhancing dopant; and the structure situated on a substrate in a vertical orientation.

203. (previously presented) A semiconductor structure on a substrate, the structure formed by a process comprising the steps of:

selectively growing a first faceted layer of epitaxial silicon on the substrate; the first faceted layer of epitaxial silicon comprising sidewalls and a faceted top surface comprising a plurality of facets;

depositing an insulative layer thereover;

removing a portion of the insulative layer to expose the top surface of the first faceted layer of epitaxial silicon;

selectively growing a second faceted layer of epitaxial silicon on the exposed top surface of the first faceted layer of epitaxial silicon, the second faceted layer of epitaxial silicon comprising sidewalls and a faceted top surface comprising a plurality of facets; and

depositing an insulative material layer thereover.

204. (previously presented) A stacked, vertically oriented semiconductor structure situated on a substrate, the structure comprising overlying faceted layers of single crystal epitaxial silicon including an uppermost layer; each of said faceted layers of epitaxial silicon having a faceted top surface comprising a plurality of facets, and sidewalls, and insulative material on the sidewalls, and the uppermost layer comprises an insulative film on the top surface; the structure formed by a process comprising the steps of:

selectively growing a first faceted layer of epitaxial silicon on a substrate;

depositing an insulative film layer thereover;

removing a portion of the insulative film layer to expose the top surface of the first faceted layer of epitaxial silicon;

selectively growing a second faceted layer of epitaxial silicon on the exposed top surface of the first faceted layer of epitaxial silicon;

depositing an insulative film layer thereover;

removing a portion of the insulative film layer to expose the top surface of the second faceted layer of epitaxial silicon;

repeating the steps of selectively growing a faceted layer of epitaxial silicon, depositing an insulative film layer, and removing a portion of the insulative film layer to form the stacked structure; wherein, upon selectively growing the uppermost faceted layer of epitaxial silicon, depositing an insulative film layer thereover, with no subsequent removal of the insulative film layer from the top surface of said uppermost faceted layer of epitaxial silicon.

205. (previously presented) A stacked, vertically oriented semiconductor structure situated on a substrate, the structure comprising overlying faceted layers of single crystal epitaxial silicon including an uppermost layer; each of said faceted layers of epitaxial silicon having a faceted top surface comprising a plurality of facets, and sidewalls, and insulative material on the sidewalls, and the uppermost layer comprises an insulative film on the top surface; the structure formed by a process comprising the steps of:

selectively growing overlying faceted layers of single crystal epitaxial silicon to form a stacked, vertically oriented structure;

wherein, prior to selectively growing each faceted layer of epitaxial silicon, depositing an insulative film over the underlying layers of epitaxial silicon, removing a portion of the insulative film to expose the top surface of the preceding layer of epitaxial silicon, and selectively growing the epitaxial silicon on the exposed top surface of said preceding layer of epitaxial silicon to form a faceted layer of epitaxial silicon; and,

upon selectively growing the uppermost layer of epitaxial silicon, depositing an insulative film layer thereover, with no subsequent removal of the insulative film layer from the top surface of said uppermost layer of epitaxial silicon.

206. (previously presented) A stacked, vertically oriented semiconductor structure on a substrate, the structure comprising overlying faceted layers of single crystal epitaxial silicon including an uppermost faceted layer of epitaxial silicon crystal; each of said faceted layers of epitaxial silicon having a faceted top surface comprising a plurality of facets, and sidewalls, and insulative material on the sidewalls, and the uppermost faceted layer of epitaxial silicon comprises an insulative film on the top surface; the structure formed by a process comprising the steps of:

selectively growing overlying faceted layers of single crystal epitaxial silicon to form a stacked, vertically oriented structure;

wherein, prior to selectively growing each faceted layer of epitaxial silicon, depositing an oxide film and removing a portion of the oxide film to expose the top surface of the preceding layer of epitaxial silicon, and selectively growing the faceted layer of epitaxial silicon on the exposed top surface of said preceding layer of epitaxial silicon; and,

upon selectively growing the uppermost faceted layer of epitaxial silicon, depositing an oxide film layer thereover, with no subsequent removal of the oxide film layer from the top surface of said uppermost faceted layer of epitaxial silicon.

207. (previously presented) A stacked, vertically oriented semiconductor structure on a substrate, the structure comprising overlying faceted layers of single crystal epitaxial silicon including an uppermost faceted layer of single crystal epitaxial silicon; each of said faceted layers of epitaxial silicon having a faceted top surface comprising a plurality of facets, and

sidewalls, and insulative material on the sidewalls, and the uppermost faceted layer of epitaxial silicon comprises an insulative film on the top surface; the structure formed by a process comprising the steps of:

selectively growing overlying faceted layers of single crystal epitaxial silicon to form a stacked, vertically oriented structure;

wherein, prior to selectively growing each faceted layer of epitaxial silicon, depositing a nitride film and removing a portion of the nitride film to expose the top surface of the preceding layer of epitaxial silicon, and selectively growing the faceted layer of epitaxial silicon on the exposed top surface of said preceding layer; and,

upon selectively growing the uppermost layer of epitaxial silicon, depositing a nitride film layer thereover, with no subsequent removal of the nitride film layer from the top surface of said uppermost layer of epitaxial silicon.

208. (previously presented) A stacked, vertically oriented semiconductor structure on a substrate, the structure comprising overlying faceted layers of single crystal epitaxial silicon including an uppermost faceted layer of single crystal epitaxial silicon; each of said faceted layers of epitaxial silicon having a faceted top surface comprising a plurality of facets, and sidewalls, and insulative material on the sidewalls, and the uppermost faceted layer of epitaxial silicon comprises an insulative film on the top surface of said layer; the structure formed by a process comprising the steps of:

selectively growing overlying faceted layers of single crystal epitaxial silicon to form a stacked, vertically oriented structure by heating the substrate to about 450°C to about 950°C., and flowing at least one silicon precursor gas over the substrate at a rate of about 10 sccm to about 500 sccm, for about 15 seconds to about 30 seconds to form a faceted layer of epitaxial silicon;

wherein, prior to selectively growing each faceted layer of epitaxial silicon, depositing an insulative film over the underlying layers, removing a portion of the insulative film to expose the top surface of the preceding layer of epitaxial silicon, and selectively growing the faceted layer of epitaxial silicon on the exposed top surface of said preceding layer of epitaxial silicon; and,

upon selectively growing the uppermost layer of epitaxial silicon, depositing an insulative film layer thereover, with no subsequent removal of the insulative film layer from the top surface of said uppermost layer of epitaxial silicon.

209. (previously presented) A stacked, vertically oriented semiconductor structure on a substrate, the structure comprising overlying faceted layers of single crystal epitaxial silicon including an uppermost faceted layer of single crystal epitaxial silicon; each of said faceted layers of epitaxial silicon having a faceted top surface comprising a plurality of facets, and sidewalls, and insulative material on the sidewalls, and the uppermost layer of epitaxial silicon comprises an insulative film on the top surface; the structure formed by a process comprising the steps of:

selectively growing overlying faceted layers of single crystal epitaxial silicon to form a stacked, vertically oriented structure by heating the substrate and flowing at least one silicon precursor gas over the substrate at a rate and pressure to provide a growth rate of the epitaxial silicon crystal at about 20 nm/minute to about 40 nm/minute such that a faceted layer of epitaxial silicon is formed;

wherein, prior to selectively growing each layer of epitaxial silicon, depositing an insulative film over the underlying layers of epitaxial silicon, removing a portion of the insulative film to expose the top surface of the preceding layer of epitaxial silicon, and selectively growing the faceted layer of epitaxial silicon on the exposed top surface of said preceding layer of epitaxial silicon; and,

upon selectively growing the uppermost layer of epitaxial silicon depositing an insulative film layer thereover, with no subsequent removal of the insulative film layer from the top surface of said uppermost layer of epitaxial silicon.

210. (previously presented) A stacked, vertically oriented semiconductor structure situated on a substrate, the structure comprising overlying faceted layers of single crystal epitaxial silicon including an uppermost faceted layer of single crystal epitaxial silicon; each of said faceted layers of epitaxial silicon having a faceted top surface comprising a plurality of facets, ~~and~~ sidewalls, and insulative material on the sidewalls, and the uppermost layer of epitaxial silicon

comprises an insulative film on the top surface; the structure formed by a process comprising the steps of:

selectively growing overlying faceted layers of single crystal epitaxial silicon to form a stacked, vertically oriented structure by heating the substrate and flowing at least one silicon precursor gas over the substrate at a rate and pressure to provide a growth rate of the epitaxial silicon of less than about 10 nm/minute such that a faceted layer of epitaxial silicon is formed;

wherein, prior to selectively growing each layer of epitaxial silicon, depositing an insulative film over the underlying layers of epitaxial silicon, removing a portion of the insulative film to expose the top surface of the preceding layer of epitaxial silicon, and selectively growing the faceted layer of epitaxial silicon on the exposed top surface of said preceding layer of epitaxial silicon; and

upon selectively growing the uppermost layer of epitaxial silicon, depositing an insulative film layer thereover, with no subsequent removal of the insulative film layer from the top surface of said uppermost layer of epitaxial silicon.

211. (previously presented) A stacked, vertically oriented semiconductor structure situated on a substrate, the structure comprising overlying faceted layers of single crystal epitaxial silicon including an uppermost layers of single crystal epitaxial silicon; each of said faceted layers of epitaxial silicon having a faceted top surface comprising a plurality of facets, and sidewalls, and insulative material on the sidewalls, and the uppermost layer of epitaxial silicon comprises an insulative film on the top surface; the structure formed by a process comprising the steps of:

selectively growing overlying faceted layers of epitaxial silicon to form a stacked, vertically oriented structure;

wherein, prior to selectively growing each layer of epitaxial silicon, forming an insulative film over the layers of epitaxial silicon by rapid thermal oxidation, removing a portion of the insulative film to expose the top surface of the preceding layer of epitaxial silicon, and selectively growing the faceted layer of epitaxial silicon on the exposed top surface of said preceding layer of epitaxial silicon; and,

upon selectively growing the uppermost layer of epitaxial silicon, forming an insulative film over the layers of epitaxial silicon by rapid thermal oxidation, with no subsequent removal of the insulative film layer from the top surface of said uppermost layer of epitaxial silicon.

212. (previously presented) A stacked, vertically oriented semiconductor structure situated on a substrate, the structure comprising overlying faceted layers of single crystal epitaxial silicon including an uppermost faceted layer of epitaxial silicon; each of said faceted layers of epitaxial silicon having a top surface comprising a plurality of facets, and sidewalls, and insulative material on the sidewalls, and the uppermost layer of epitaxial silicon comprises an insulative film on the top surface; the structure formed by a process comprising the steps of:

selectively growing overlying faceted layers of single crystal epitaxial silicon to form a stacked, vertically oriented structure;

wherein, prior to selectively growing each layer of epitaxial silicon, forming an insulative film over the layers of epitaxial silicon by rapid thermal nitridation, removing a portion of the insulative film to expose the top surface of the preceding layer of epitaxial silicon, and selectively growing the layer of epitaxial silicon on the exposed top surface of said preceding layer of epitaxial silicon; and,

upon selectively growing the uppermost layer of epitaxial silicon, forming an insulative film over the layers of epitaxial silicon by rapid thermal nitridation, with no subsequent removal of the insulative film layer from the top surface of said uppermost layer of epitaxial silicon.

213. (previously presented) A semiconductor structure situated on a substrate, the structure formed by a process comprising the steps of:

selectively growing a first faceted layer of epitaxial silicon on the substrate; the first layer of epitaxial silicon comprising sidewalls and a faceted top surface comprising a plurality of facets;

depositing an insulative layer thereover;

removing a portion of the insulative layer to expose the top surface of the first layer of epitaxial silicon;

selectively growing a second faceted layer of epitaxial silicon on the exposed top surface of the first layer of epitaxial silicon while depositing a conductivity enhancing dopant, the second layer of epitaxial silicon comprising sidewalls and a faceted top surface comprising a plurality of facets;

depositing an insulative material layer thereover.

214. (previously presented) A semiconductor structure situated on a substrate, the structure formed by a process comprising the steps of:

selectively growing a first faceted layer of epitaxial silicon on the substrate; the first layer of epitaxial silicon comprising sidewalls and a faceted top surface comprising a plurality of facets;

depositing an insulative layer thereover;

removing a portion of the insulative layer to expose the top surface of the first layer of epitaxial silicon;

selectively growing a second faceted layer of epitaxial silicon on the exposed top surface of the first layer of epitaxial silicon, the second layer of epitaxial silicon comprising sidewalls and a faceted top surface comprising a plurality of facets;

doping the second layer of epitaxial silicon with a conductivity enhancing dopant by ion implantation, and

depositing an insulative material layer thereover.

215. (previously presented) A stacked, vertically oriented semiconductor structure situated on a substrate, the structure comprising overlying faceted layers of single crystal epitaxial silicon including an uppermost faceted layer of epitaxial silicon; each of said faceted layers of epitaxial silicon having a faceted top surface comprising a plurality of facets, and sidewalls, and insulative material on the sidewalls, and the uppermost layer of epitaxial silicon comprises an insulative film on the top surface; the structure formed by a process comprising the steps of:

selectively growing overlying faceted layers of single crystal epitaxial silicon to form a stacked, vertically oriented structure by heating the substrate and flowing at least one silicon precursor gas over the substrate at a rate and pressure to provide a growth rate of the epitaxial

silicon crystal at about 20 nm/minute to about 40 nm/minute such that a faceted layer of epitaxial silicon is formed, wherein selectively growing at least the uppermost layer of epitaxial silicon comprises flowing the at least one silicon precursor gas with a conductivity enhancing dopant over the substrate; and

prior to selectively growing each layer of epitaxial silicon, depositing an insulative film over the underlying layers of epitaxial silicon, removing a portion of the insulative film to expose the top surface of the preceding layer of epitaxial silicon, and selectively growing the layer of epitaxial silicon on the exposed top surface of the preceding layer of epitaxial silicon; and,

upon selectively growing the uppermost layer of epitaxial silicon, depositing an insulative film layer thereover, with no subsequent removal of the insulative film layer from the top surface of said uppermost layer of epitaxial silicon.

216. (previously presented) A stacked, vertically oriented semiconductor structure situated on a substrate, the structure comprising overlying faceted layers of single crystal epitaxial silicon including an uppermost layer of epitaxial silicon; each of said faceted layers of epitaxial silicon having a faceted top surface comprising a plurality of facets, and sidewalls, and insulative material on the sidewalls, and the uppermost faceted layer of epitaxial silicon comprises an insulative film on the top surface; the structure formed by a process comprising the steps of:

selectively growing a first faceted layer of single crystal epitaxial silicon on a substrate;

depositing an insulative film layer thereover;

removing a portion of the insulative film layer to expose the top surface of said first layer of epitaxial silicon;

selectively growing a second faceted layer of single epitaxial silicon on the exposed top surface of said first layer of epitaxial silicon;

depositing an insulative film layer thereover;

removing a portion of the insulative film layer to expose the top surface of said second layer of epitaxial silicon; and

repeating the steps of selectively growing a faceted layer of single crystal epitaxial silicon, depositing an insulative film layer, and removing a portion of the insulative film layer to form the stacked structure; and during the step of selectively growing the uppermost faceted

layer of epitaxial silicon, depositing a conductivity enhancing dopant to form a concentration of the dopant within said uppermost layer;

wherein, upon selectively growing the uppermost layer of epitaxial silicon, depositing an insulative film layer thereover, with no subsequent removal of the insulative film layer from the top surface of said uppermost layer of epitaxial silicon.

217. (previously presented) A stacked, vertically oriented semiconductor structure situated on a substrate, the structure comprising overlying faceted layers of single crystal epitaxial silicon including an uppermost faceted layer of epitaxial silicon; each of said faceted layers of epitaxial silicon having a faceted top surface comprising a plurality of facets, and sidewalls, and insulative material on the sidewalls, and the uppermost layer of epitaxial silicon comprises an insulative film on the top surface; the structure formed by a process comprising the steps of:

selectively growing a first faceted layer of single crystal epitaxial silicon on a substrate;

depositing an insulative film layer thereover;

removing a portion of the insulative film layer to expose the top surface of the first layer of epitaxial silicon;

selectively growing a second faceted layer of single crystal epitaxial silicon on the exposed top surface of the first layer of epitaxial silicon;

depositing an insulative film layer thereover;

removing a portion of the insulative film layer to expose the top surface of the second layer of epitaxial silicon; and

repeating the steps of selectively growing a faceted layer of single crystal epitaxial silicon, depositing an insulative film layer, and removing a portion of the insulative film layer to form the stacked structure; and during the step of selectively growing the uppermost layer of epitaxial silicon, depositing a conductivity enhancing dopant at a variable rate to provide a concentration gradient of the dopant within the uppermost layer of epitaxial silicon;

wherein, upon selectively growing the uppermost layer of epitaxial silicon, depositing an insulative film layer thereover, with no subsequent removal of the insulative film layer from the top surface of said uppermost layer of epitaxial silicon.

218. (previously presented) A stacked, vertically oriented semiconductor structure situated on a substrate, the structure comprising overlying faceted layers of single crystal epitaxial silicon including an uppermost faceted layer of epitaxial silicon; each of said faceted layers of epitaxial silicon having a faceted top surface comprising a plurality of facets, and sidewalls, and insulative material on the sidewalls, and the uppermost layer of epitaxial silicon comprises an insulative film ~~disposed~~ on the top surface; the structure formed by a process comprising the steps of:

selectively growing a first faceted layer of single crystal epitaxial silicon on a substrate;

depositing an insulative film layer thereover;

removing a portion of the insulative film layer to expose the top surface of the first layer of epitaxial silicon;

selectively growing a second faceted layer of single crystal epitaxial silicon on the exposed top surface of the first layer of epitaxial silicon;

depositing an insulative film layer thereover;

removing a portion of the insulative film layer to expose the top surface of the second layer of epitaxial silicon; and

repeating the steps of selectively growing a faceted layer of epitaxial silicon, depositing an insulative film layer, and removing a portion of the insulative film layer to form the stacked structure; and during the step of selectively growing the uppermost e layer of epitaxial silicon, depositing a conductivity enhancing dopant at an increasing rate over time to provide a low to high concentration of the dopant within the uppermost layer of epitaxial silicon;

wherein, upon selectively growing the uppermost layer of epitaxial silicon, depositing an insulative film layer thereover, with no subsequent removal of the insulative film layer from the top surface of said uppermost layer of epitaxial silicon.

219. (previously presented) A stacked, vertically oriented semiconductor structure situated on a substrate, the structure comprising overlying faceted layers of single crystal epitaxial silicon including an uppermost faceted layer of epitaxial silicon; each of said faceted layers of epitaxial silicon having a faceted top surface comprising a plurality of facets, and sidewalls, and insulative material on the sidewalls, and the uppermost layer of epitaxial silicon comprises an insulative film on the top surface; the structure formed by a process comprising the steps of:

selectively growing a first faceted layer of single crystal epitaxial silicon on a substrate;

depositing an insulative film layer thereover;

removing a portion of the insulative film layer to expose the top surface of the first layer of epitaxial silicon;

selectively growing a second faceted layer of single crystal epitaxial silicon on the exposed top surface of the first faceted layer of epitaxial silicon;

depositing an insulative film layer thereover;

removing a portion of the insulative film layer to expose the top surface of the second layer of epitaxial silicon; and

repeating the steps of selectively growing a faceted layer of single crystal epitaxial silicon, depositing an insulative film layer, and removing a portion of the insulative film layer to form the stacked structure; wherein the uppermost layer of epitaxial silicon is selectively grown while doping, and upon selectively growing the uppermost layer of epitaxial silicon, depositing an insulative film layer thereover, with no subsequent removal of the insulative film layer from the top surface of said uppermost layer of epitaxial silicon.

220. (previously presented) A stacked, vertically oriented semiconductor structure situated on a substrate, the structure comprising overlying faceted layers of single crystal epitaxial silicon including an uppermost faceted layer of single crystal epitaxial silicon; each of said faceted layers of epitaxial silicon having a faceted top surface comprising a plurality of facets, and sidewalls, and insulative material ~~disposed~~ on the sidewalls, and the uppermost layer of epitaxial silicon comprises an insulative film on the top surface; the structure formed by a process comprising the steps of:

selectively growing a first faceted layer of single crystal epitaxial silicon on a substrate;

depositing an insulative film layer thereover;

removing a portion of the insulative film layer to expose the top surface of the first layer of epitaxial silicon;

selectively growing a second faceted layer of single crystal epitaxial silicon on the exposed top surface of the first layer of epitaxial silicon;

depositing an insulative film layer thereover;

removing a portion of the insulative film layer to expose the top surface of the second layer of epitaxial silicon; and

repeating the steps of selectively growing a faceted layer of single crystal epitaxial silicon, depositing an insulative film layer, and removing a portion of the insulative film layer to form the stacked structure;

wherein, upon selectively growing the uppermost layer of epitaxial silicon, doping the uppermost layer of epitaxial silicon with a conductivity enhancing dopant by ion implantation, and depositing an insulative film layer thereover, with no subsequent removal of the insulative film layer from the top surface of said uppermost layer of epitaxial silicon.

221. (previously presented) A stacked, vertically oriented semiconductor structure situated on a substrate, the structure comprising overlying faceted layers of single crystal epitaxial silicon including an uppermost faceted layer of epitaxial silicon; each of said faceted layers of epitaxial silicon having a faceted top surface comprising a plurality of facets, and sidewalls, and insulative material on the sidewalls, and the uppermost layer of epitaxial silicon comprises an insulative film on the top surface; the structure formed by a process comprising the steps of:

selectively growing overlying faceted layers of single crystal epitaxial silicon to form a stacked, vertically oriented structure;

wherein, prior to selectively growing each layer of epitaxial silicon, forming an insulative film over the layers of epitaxial silicon by rapid thermal oxidation, removing a portion of the insulative film to expose the top surface of the preceding layer of epitaxial silicon, and selectively growing the faceted layer of epitaxial silicon on the exposed top surface of the preceding layer of epitaxial silicon; and, during the step of selectively growing the uppermost layer of epitaxial silicon, depositing a conductivity enhancing dopant to form a concentration of the dopant within the uppermost layer of epitaxial silicon; and

upon selectively growing the uppermost layer of epitaxial silicon, forming an insulative film over the layers of epitaxial silicon by rapid thermal oxidation, with no subsequent removal of the insulative film layer from the top surface of said uppermost layer of epitaxial silicon.

222. (previously presented) A stacked, vertically oriented semiconductor structure situated on a substrate, the structure comprising overlying faceted layers of single crystal epitaxial silicon including an uppermost faceted layer of epitaxial silicon; each of said faceted layers of epitaxial silicon having a faceted top surface comprising a plurality of facets, and sidewalls, and insulative material on the sidewalls, and the uppermost layer of epitaxial silicon comprises an insulative film on the top surface; the structure formed by a process comprising the steps of:

selectively growing overlying faceted layers of single crystal epitaxial silicon to form a stacked, vertically oriented structure;

wherein, prior to selectively growing each layer of epitaxial silicon, forming an insulative film over the layers of epitaxial silicon by rapid thermal nitridation, removing a portion of the insulative film to expose the top surface of the preceding layer of epitaxial silicon, and selectively growing the layer of epitaxial silicon on the exposed top surface of the preceding layer of epitaxial silicon; and, during the step of selectively growing the uppermost layer of epitaxial silicon, depositing a conductivity enhancing dopant to form a concentration of the dopant within said uppermost layer of epitaxial silicon; and

upon selectively growing the uppermost layer of epitaxial silicon, forming an insulative film over the layers of epitaxial silicon by rapid thermal nitridation, with no subsequent removal of the insulative film layer from the top surface of said uppermost layer of epitaxial silicon.

223. (previously presented) A stacked, vertically oriented semiconductor structure situated on a substrate, the structure comprising overlying faceted layers of single crystal epitaxial silicon including an uppermost faceted layer of epitaxial silicon; each of said faceted layers of epitaxial silicon having a faceted top surface comprising a plurality of facets, and sidewalls, and insulative material on the sidewalls, and the uppermost layer of epitaxial silicon comprises an insulative film on the top surface; the structure formed by a process comprising the steps of:

selectively growing a first faceted layer of single crystal epitaxial silicon on a substrate;

depositing an insulative film layer thereover;

removing a portion of the insulative film layer to expose the top surface of the first layer of epitaxial silicon;

selectively growing a second faceted layer of single crystal epitaxial silicon on the exposed top surface of the first layer of epitaxial silicon;

depositing an insulative film layer thereover;

removing a portion of the insulative film layer to expose the top surface of the second layer of epitaxial silicon; and

repeating the steps of selectively growing a faceted layer of single crystal epitaxial silicon, depositing an insulative film layer, and removing a portion of the insulative film layer to form the stacked structure; and during the step of selectively growing the uppermost layer of epitaxial silicon, depositing a conductivity enhancing dopant to form a concentration of the dopant within the uppermost layer of epitaxial silicon;

wherein, upon selectively growing the uppermost layer of epitaxial silicon, depositing an insulative film layer thereover, with no subsequent removal of the insulative film layer from the top surface of said uppermost layer of epitaxial silicon.

224. (previously presented) The semiconductor structure of Claim 143, wherein each of the faceted top surfaces of said faceted layers of epitaxial silicon defines a facet having a (100) plane orientation.

225. (previously presented) A raised structure on a substrate, comprising a plurality of overlying layers of epitaxial silicon, each of said silicon layers having an upper surface comprising a plurality of facets, and sidewalls with an insulative layer thereover.

226. (previously presented) The structure of Claim 225, wherein an uppermost silicon layer comprises a conductivity enhancing dopant.

227. (new) A raised structure on a substrate, comprising:

a first layer of epitaxial silicon situated on the substrate, and comprising vertical sidewalls and an upper surface defining a plurality of facets including a facet in a horizontal plane orientation, with an insulative spacer overlying the sidewalls and the upper surface but not the horizontal plane oriented facet; and

a second layer of epitaxial silicon situated on the horizontal plane oriented facet of the upper surface of the first epitaxial silicon layer, and comprising vertical sidewalls and an upper surface, with an insulative spacer overlying the sidewalls and the upper surface.

228. (new) The raised structure of Claim 227, wherein the upper surface of the second epitaxial silicon layer defines a plurality of facets.

229. (new) A raised structure on a substrate, comprising:

at least two overlying layers of epitaxial silicon, including an uppermost epitaxial silicon layer, each epitaxial silicon layer having vertical sidewalls, and an upper surface defining a plurality of facets including a facet in a horizontal plane orientation; and

an insulative spacer overlying the sidewalls and the upper surface but not the horizontal plane oriented facet of the epitaxial silicon layers, with an insulative layer overlying the horizontal plane oriented facet of the upper surface of the uppermost epitaxial silicon layer.

230. (new) A raised structure on a substrate, comprising:

at least two overlying layers of epitaxial silicon, including an uppermost epitaxial silicon layer, each epitaxial silicon layer having vertical sidewalls, and an upper surface defining a plurality of facets in an angled plane orientation and a facet in a horizontal plane orientation;

an insulative spacer overlying the sidewalls and the angled plane oriented facets but not the horizontal plane oriented facet; and

an insulative layer overlying the horizontal plane oriented facet of the upper surface of the uppermost epitaxial silicon layer.

231. (new) The transistor of Claim 230, wherein an uppermost silicon layer comprises a conductivity enhancing dopant.

232. (new) A raised structure on a substrate, comprising:

at least two overlying layers of epitaxial silicon, including an uppermost epitaxial silicon layer, each epitaxial silicon layer having vertical sidewalls, and an upper surface defining a plurality of facets in a (110) or (111) plane orientation and a facet in a (100) plane orientation;

an insulative spacer overlying the sidewalls and the (110) or (111) plane oriented facets but not the (100) plane oriented facet; and

an insulative layer overlying the (100) plane oriented facet of the upper surface of the uppermost epitaxial silicon layer.